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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,690	06/18/2007	Andrew Simon Oldfield	11801-003-999	3033
20583 7550 03/03/2009				
JONES DAY				
222 EAST 41ST ST				
NEW YORK, NY 10017				
EXAMINER				
WEISS, PAMELA HL				
ART UNIT		PAPER NUMBER		
1797				
MAIL DATE		DELIVERY MODE		
03/03/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/591,690

Applicant(s)

OLDFIELD, ANDREW SIMON

Examiner

PAMELA WEISS

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF 298)
Paper No(s)/Mail Date ____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:
2. The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 12, 13, and 14, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Claims 12, 13 and 14 provide for the use of an automotive engine oil (claims 12 and 13) and use of an antiwear additive system (Claim 14), but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claims 12, 13 and 14 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3, 4, 6-7, 9, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Kenbeek (EP 0335013) as evidenced by Marchand et al. (GB1390439)

Regarding Claims 1 and 16.

Kenbeek discloses a base oil (Abstract and P2 L46-47 synthetic lubricant base) and an antiwear additive system comprising an ester (P2 L52-55 polyester additive) which is the reaction product (P3 L50-58 disclosing the reactants and an esterification process) of

- (a) at least one polyfunctional alcohol; (P3 L1 glycol, neopentylglycol)
- (b) a dimer fatty acid; and (P2 L52-53 and P3 L60-62)
- (c) The optional component is not disclosed (optionally at least one of an aliphatic dicarboxylic acid having 5 to 18 carbon atoms, an aliphatic monocarboxylic acid having 5 to 24 carbon atoms and an aliphatic monofunctional alcohol having 5 to 24 carbon atoms with the resultant ester having a kinematic viscosity at 100 °C ranging from 500 to 5000 mm²/s and a non- polarity index (NPI) $NPI = \frac{\text{total number of carbon atoms} \times \text{molecular weight}}{\text{number of carboxylate groups}} \times 100$ of at least 500).

A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the

process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Thus the intended use of the composition as an automotive engine oil comprising and an antiwear additive system is not afforded patentable weight since the recitation of an intended use does not impart patentability to otherwise old compounds or compositions. *In re Tuominen*, 671 F.2d 1359, 213 USPQ 89 (CCPA 1982).

Regarding Claim 3.

Kenbeek discloses the limitations set forth above. Since the optional component 1(c) is not present, no aliphatic dicarboxylic acid having 5 to 18 carbon atoms is required to be present.

Regarding Claim 4.

Kenbeek discloses the limitations set forth above. Kenbeek also discloses an automotive engine oil wherein the polyfunctional alcohol is a polyol of formula $R(OH)_n$ where n is an integer which ranges from 1 to 10 and R is a hydrocarbon chain of 2 to 15 carbon atoms where the polyol is of molecular weight in the range from 50 to 650. (P3 L52 neopentyl glycol $C_5H_{12}O_2$ MW 104.15 thus falling within the claimed ranges)

Regarding Claim 6.

Kenbeek discloses the limitations set forth above. Kenbeek discloses the claimed composition. As such, the composition will intrinsically possess the same physical characteristics including the NPI value of at least 900.

Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977).

Regarding Claim 7.

Kenbeek discloses the limitations set forth above. Kenbeek also discloses an automotive engine oil wherein the resultant ester has an average molecular weight of at least 3000. (P4 L9 average molecular weight was 5900 for example 2).

Regarding Claim 9.

Kenbeek discloses the limitations set forth above. Kenbeek also discloses an automotive engine oil wherein the antiwear additive system further comprises a phosphorus- containing and/or sulphur- containing antiwear additive. (P3 L40-43 wherein additional adjuncts are added such as antioxidants, anticorrosion, metal deactivators, tricresyl phosphate, etc.)

7. Claims 5 is rejected under 35 U.S.C. 102(b) as being anticipated by Kenbeek (EP 0335013) as applied to claim 1 above in light of the evidence provided by Marchand et al. (GB1390439)

Regarding Claim 5.

Kenbeek discloses the limitations set forth above. Kenbeek also discloses an additive wherein the reactants are a dimer acid and neopentyl glycol (i.e. 2,2-dimethyl-1,3-propanediol) (P4 L5-6).

Kenbeek discloses the claimed composition it should inherently possess the same physical qualities of kinematic viscosity at 100°C of 900 to 4000 mm²/s. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). This is further evidenced by Marchand which discloses an ester used as a lubricant in engines (P1 C2 L57-59) comprising a polyester of dimeric acid and 2,2-dimethyl-1,3propanediol which has a viscosity of 2840 cSt at 98.9°C. (Note: 2840cSt = 2840 mm²/s) (P4 L1-9)

8. Claims 1, 3, 4, 7, 9, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Kenbeek (US 6,462,001).

Regarding Claims 1, 2 and 16.

Kenbeek '001 discloses an ester additive and an antiwear system which may be used in multi-grade gear oil with mineral oil or Polyalpha olefins (C6 L5-10) automotive engine oil comprising a base oil (C9 L2-4 esters used with other base mineral oils) and an antiwear additive system (C4 L53-55) comprising an ester which is the reaction product of

(a) at least one polyfunctional alcohol; (C6 L17)

(b) a dimer fatty acid; (C6 L20-25) and

(c) at least one of an aliphatic dicarboxylic acid having 5 to 18 carbon atoms, an aliphatic monocarboxylic acid having 5 to 24 carbon atoms (a

monocarboxylic acid having from 7 to 22 carbons falling within the claimed range) and an aliphatic monofunctional alcohol having 5 to 24 carbon atoms (C6 L35-40 monofunctional alcohol having 14 to 24 carbons falling within the claimed range) with the resultant ester having a kinematic viscosity at 100 °C ranging from 500 to 5000 mm²/s (C6 L38-41 KV 30-1000 mm²/s) and a non- polarity index (NPI) $NPI = \text{total number of carbon atoms} * \text{molecular weight number of carboxylate groups} \times 100$ of at least 500. Kenbeek discloses the claimed composition. As such, it will intrinsically possess the same physical characteristics including NPI value of at least 500. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
11. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenbeek (EP 0335013) as applied to claims 1 and 9 above, and further in view of Shaub et al. (US 4,479,883)

Regarding Claims 10 and 11

Kenbeek discloses the limitations set forth above. Kenbeek also discloses that additional additives may be incorporated into the lubricant composition such as such as antioxidants, anticorrosion, metal deactivators, tricresyl phosphate, etc. (P3 L40-43)

Kenbeek does not expressly disclose the further antiwear additive is both a phosphorus-containing and sulphur-containing additive or wherein the antiwear additive is zinc dialkyldithiophosphate.

Shaub et al. discloses a lubricating oil composition containing an ester of polycarboxylic acid and glycol with a metal dithiocarbamate improves friction reducing properties while retaining other desired lubricant properties. (C2 L5-16). Shaub discloses the ester to be from a dimer fatty acid and an ethylene glycol (C4 L43-45 and C4 L43). Shaub further discloses the metal dithiocarbamate to be zinc dialkyl dithiophosphate. (C6 L16).

It would have been obvious to a person having ordinary skill in the art at the time of invention to add the zinc dialkyl dithiophosphate to the ester composition of Kenbeek as doing so would improve the friction reducing properties of the composition of Kenbeek while maintaining the other lubricant qualities.

12. Claims 12, 13, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenbeek (EP 0335013) as applied to claim 1 above, and further in view of Shaub et al. (US 4,459,223).

Regarding Claims 12, 13, 14 and 15.

Kenbeek discloses the limitations set forth above. Kenbeek discloses the limitations of claim one which are incorporated herein thus disclosing the antiwear additive system, an automotive engine oil with base oil and ester reaction product.

Kenbeek does not expressly disclose a method of reducing wear in an automotive engine by the use of the additive, the use of an automotive engine oil, the use of an antiwear additive system, the method of reducing wear by addition of automotive engine oil, an automotive engine comprising an automotive engine oil and antiwear additive system.

Shaub et al. discloses a lubricating oil composition for use in internal combustion engines and method of lubricating said engines to reduce friction with an additive which is the reaction product of a dimer of carboxylic acid and polyhydric alcohol (Abstract).

It would have been obvious to a person having ordinary skill in the art at the time of invention to use the composition of Kenbeek in an automobile engine to impart antifricition qualities and improve engine wear as Shaub discloses that esters prepared from the reaction of a dimer of carboxylic acid and a polyhydric alcohol are effective friction reducers in automobile engines.

13. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kenbeek (EP 0335013) as applied to claim 1 above, and further in view of Kenbeek et al. (US 6,462,001B1) hereinafter referred to as Kenbeek '001)

Regarding Claim 2.

Kenbeek discloses an automotive engine oil comprising a base oil (Abstract and P2 L46-47 synthetic lubricant base) and an antiwear additive system comprising an ester (P2 L52-55 polyester additive) which is the reaction product (P3 L50-58 disclosing the reactants and an esterification process) of

(a) at least one polyfunctional alcohol; (P3 L1 glycol, neopentylglycol)

(b) a dimer fatty acid; and (P2 L52-53 and P3 L60-62)

Kenbeek does not expressly disclose:

(c) at least one of an aliphatic dicarboxylic acid having 5 to 18 carbon atoms, an aliphatic monocarboxylic acid having 5 to 24 carbon atoms and an aliphatic monofunctional alcohol having 5 to 24 carbon atoms with the resultant ester having a kinematic viscosity at 100 °C ranging from 500 to 5000 mm²/s and a non-polarity index (NPI) $NPI = \frac{\text{total number of carbon atoms} \times \text{molecular weight}}{\text{number of carboxylate groups} \times 100}$ of at least 500.

Kenbeek '001 discloses an ester from a reaction of a polyfunctional alcohol, a dimer fatty acid and a monofunctional alcohol having at least 14 carbons (thus overlapping the claimed range of 5 to 24) or an aliphatic monocarboxylic acid having from 7 to 14 carbons (C2 L62-67 thus falling within

the claimed range of 5 to 24 carbons) and having a resulting kinematic viscosity at 100°C of 30 to 1000cSt (i.e. 30 to 1000 mm²/s) thus overlapping the claimed range. (Abstract) See MPEP 2144.05(I): "In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976);"

Kenbeek '001 also discloses that complex esters will have improved properties may be obtained by using chain stopping agents in the production of the complex ester so as to reduce or remove the number of free alcohol and or carboxylic acid groups in the ester and so terminate the esterification process. (C1 L58-65).

It would have been obvious to a person having ordinary skill in the art at the time of invention to add the chain stopping agent so as to reduce or remove the number of free alcohol and or carboxylic acid groups in the ester and terminate the esterification process and impart improved properties to the composition of Kenbeek.

Modified Kenbeek discloses the claimed composition. As such, it will intrinsically possess the same physical characteristics including NPI value of at least 500. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977).

14. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kenbeek (EP 0335013) as applied to claim 1 above, and further in view of Young et al. (US 3,202,701)

Regarding Claim 8.

Kenbeek discloses the limitations set forth above. Kenbeek also discloses an ester formed with neopentyl glycol and a dimer acid. (P3 L62).

Kenbeek does not expressly disclose to the oil wherein the resultant ester is the reaction product of the neopentyl glycol with dimer acid and azeleic acid.

Young et al. discloses a complex ester of a mixture of acids and neopentyl glycol which produces a lubricant which remains haze free at low temperatures and has heat stability with good viscosity. (C2 L30-37 and L53) The ester is formed by either a one state or two stage reaction (C4 L10-11). Young et al. discloses that the acid mixtures may comprise dicarboxylic acid and azelaic acid (C2 L56-65).

It would have been obvious to a person having ordinary skill in the art at the time of invention to add azelaic acid of Young et al to the reaction mixture of Kenbeek as Young teaches that said acid is useful in a complex ester mixture and will reduce haze at low temperature and impart heat stability with good viscosity.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAMELA WEISS whose telephone number is (571)270-7057. The examiner can normally be reached on Mon.-Thur. 7:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Glenn A Caldarola/
Acting SPE of Art Unit 1797

PW